

Medical device modeling software sparks tech startup

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ASU spinout promises global market impact

A business startup formed to commercialize technology developed by an Arizona State University engineer and his students has won an [Arizona Innovation Challenge award](#) from the Arizona Commerce Authority (ACA), the state's leading economic development agency.

Recipients of the award “represent innovative Arizona entrepreneurs who are creating technological solutions with the potential for global impact,” the ACA said.

The award brings the company, [EndoVantage](#), a grant of \$250,000 to support development of its business operations. The venture is based on a novel software platform that simulates the effects of deploying small medical devices (stents, for example) into blood vessels, as well as simulating the resulting blood flow changes.

EndoVantage is one of six ventures to receive an Arizona Innovation Challenge award so far this year from among 135 applicants.

The startup was also recently selected to receive support from ASU's Edson Student Entrepreneur Initiative – \$20,000 in seed funding, along with office space and other resources at SkySong, The ASU Scottsdale Innovation Center, and mentoring from business experts.

In addition, the venture was accepted into IBM's Softlayer Incubator, which is providing mentoring in software engineering and business-related services.

In 2013, EndoVantage received a \$100,000 grant from the Center for Individualized Medicine at Mayo Clinic and the Office of Knowledge Enterprise Development at Arizona State University. The competition, which included 20 ASU and Mayo Clinic teams, was intended to promote personalized health care, the next frontier in patient-specific medicine.

David Frakes and Haithem Babiker invented the EndoVantage technology platform in ASU's Image Processing Applications Laboratory with help from Brian Chong, a physician at Mayo Clinic Hospital in



The EndoVantage startup team includes (from left) healthcare entrepreneur Robert S. Green, Mayo Clinic physician Brian Chong, ASU biomedical engineer David Frakes, ASU postdoctoral research associate Haithem Babiker, research intern Nick Pracht, and ASU biomedical engineering doctoral student Justin Ryan.

Phoenix.

Frakes is the chief science officer for EndoVantage. He is an associate professor in the School of Biological and Health Systems Engineering, and in the School of Electrical, Computer and Energy Engineering, two of ASU's Ira A. Fulton Schools of Engineering.

Babiker is the chief technology officer. He is a postdoctoral research associate in the School of Biological and Health Systems Engineering.

Justin Ryan, a biomedical engineering doctoral student working in Frakes' lab, is contributing to EndoVantage by providing 3-D virtual modeling of blood vessels.

With the EndoVantage platform, clinicians "now for the first time can design the optimal endovascular treatment strategy for each patient before surgery," Frakes said. "This improves the quality of treatment and reduces costs."

The technology will also enable medical device companies to perform virtual testing of medical devices in hundreds of different virtual patient anatomies. That capability will help improve product design and prevent product defects and other risks to patients, Frakes said.

"Ultimately, the EndoVantage technology will lead to better medical devices, and better use of those devices in the clinic to save patients' lives," he said.

The spinout of EndoVantage from ASU was facilitated by Arizona Technology Enterprises (AzTE), ASU's technology transfer organization. AzTE has worked with Frakes' team throughout the process from commercialization to startup and revenue generation.

Longtime Arizona health care entrepreneur Robert S. Green has joined the venture as president and chief executive officer. Green founded and operated six successful companies, and is past president of the Arizona BiIndustry Association.

"ASU is on the leading edge of universities supporting research commercialization efforts by faculty," Green said. "The support we have received from AzTE and the Entrepreneurship and Innovation Group has been critical to our success to date."

Joe Kullman, Joseph.Kullman@asu.edu
(480) 965-8122
Ira A. Fulton Schools of Engineering

Molly Brush, Molly.Brush@asu.edu
Office of Knowledge Enterprise Development